

# Annual statement of emissions for 2008

# **Department of Energy and Climate Change**

## **Annual statement of emissions for 2008**

**Presented to Parliament pursuant to section 16  
of the Climate Change Act 2008**

Amended 29th March 2010 from the version laid before Parliament on 18th March 2010, which  
was subsequently withdrawn on 29th March 2010

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## **Amendments to the version laid before Parliament on 18 March 2010**

The following corrections have been made:

Page 13: last cell in the right-hand column of table 6, "Increase" corrected to read "Decrease".

Page 13: penultimate cell in the right-hand column of table 7, "221,020" corrected to read "792,432".

Page 19: penultimate cell in the right-hand column of table 10, "245,294,284" corrected to read "245,294,084".



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# Executive summary

This is the first annual statement of emissions required under section 16 of the Climate Change Act 2008. It sets out the steps taken to calculate the “net UK carbon account” in respect of 2008 – this is what we compare against the carbon budgets to determine whether they are being met, and must not exceed the level of the carbon budget at the end of each budgetary period.

The net UK carbon account is calculated by first taking net UK emissions (i.e. aggregate gross emissions from sources in the UK, adjusted to take into account removals of emissions from the atmosphere by UK carbon sinks). These are adjusted to account for any carbon units which have been brought in from overseas by Government and others to offset UK emissions, and UK carbon units which have been disposed of to a third party outside the UK. The detailed rules for these calculations are contained in the Carbon Accounting Regulations 2009.

This statement shows that, in 2008, net UK emissions were 626.0 million tonnes of carbon dioxide-equivalent (MtCO<sub>2</sub>e). This is 11.9 MtCO<sub>2</sub>e (1.9%) less than net UK emissions in 2007. In addition, 19.3 MtCO<sub>2</sub>e worth of carbon units were bought in 2008 by companies in the UK operating under the EU Emissions Trading System (EU ETS). Taking into account the use of these carbon units, this means **the net UK carbon account in 2008 was 606.7 MtCO<sub>2</sub>e.**

This is 22% below base year emissions, which were 777.8 MtCO<sub>2</sub>e. It is well within the indicative annual range of where we expected the net UK carbon account for 2008 to fall (588 MtCO<sub>2</sub>e to 619 MtCO<sub>2</sub>e), which was published in the UK Low Carbon Transition Plan.

Annual statements in future years must be produced by 31 March annually, and final statements for each budgetary period – which will combine the results of each annual statement for the budgetary period to determine whether the budget has been met – must be produced by 31 May in the second year following the end of the budgetary period.





# Introduction

1. The Climate Change Act 2008 introduced a legally binding target to reduce greenhouse gas emissions by at least 80% below 1990 levels in 2050, with an interim target to reduce emissions by at least 34% in 2020. The Act also introduced ‘carbon budgets’, which will set the trajectory to ensure the targets in the Act are met. These budgets represent legally-binding limits on the total amount of greenhouse gases that can be emitted in the UK for a given five-year period.
2. The first budgetary period runs from 2008 to 2012 and the next two budgets cover the periods 2013-2017 and 2018-2022. The level of these budgets, which took account of the advice of the independent Committee on Climate Change, were announced at Budget 2009 and subsequently approved by Parliament and entered into force in May 2009.
3. Under the Act, the Government must set budgets at least three periods in advance, and by 30 June 2011 we must set the level of the fourth budget (2023-2027). The Committee on Climate Change must provide advice to Government on the level of this budget by 31 December 2010.
4. In order to monitor progress towards the carbon budgets in each year, section 16 of the Climate Change Act requires that the Government lays before Parliament an annual statement of emissions. This must provide information on our progress towards meeting carbon budgets in a clear and transparent way. The statements must include information on both emissions of greenhouse gases in the UK and removals of greenhouse gas emissions from the atmosphere (e.g. from forestry activities), as well as the use of carbon units – where they have been brought into the UK from overseas to offset UK emissions, or sold to a third party outside the UK. This ensures that an amount for “the net UK carbon account” can be calculated in each year, in accordance with the requirements in the Act. This statement, which relates to 2008, is the first such statement under the Act. Subsequent statements must be produced by 31 March annually.

## Calculating the net UK carbon account

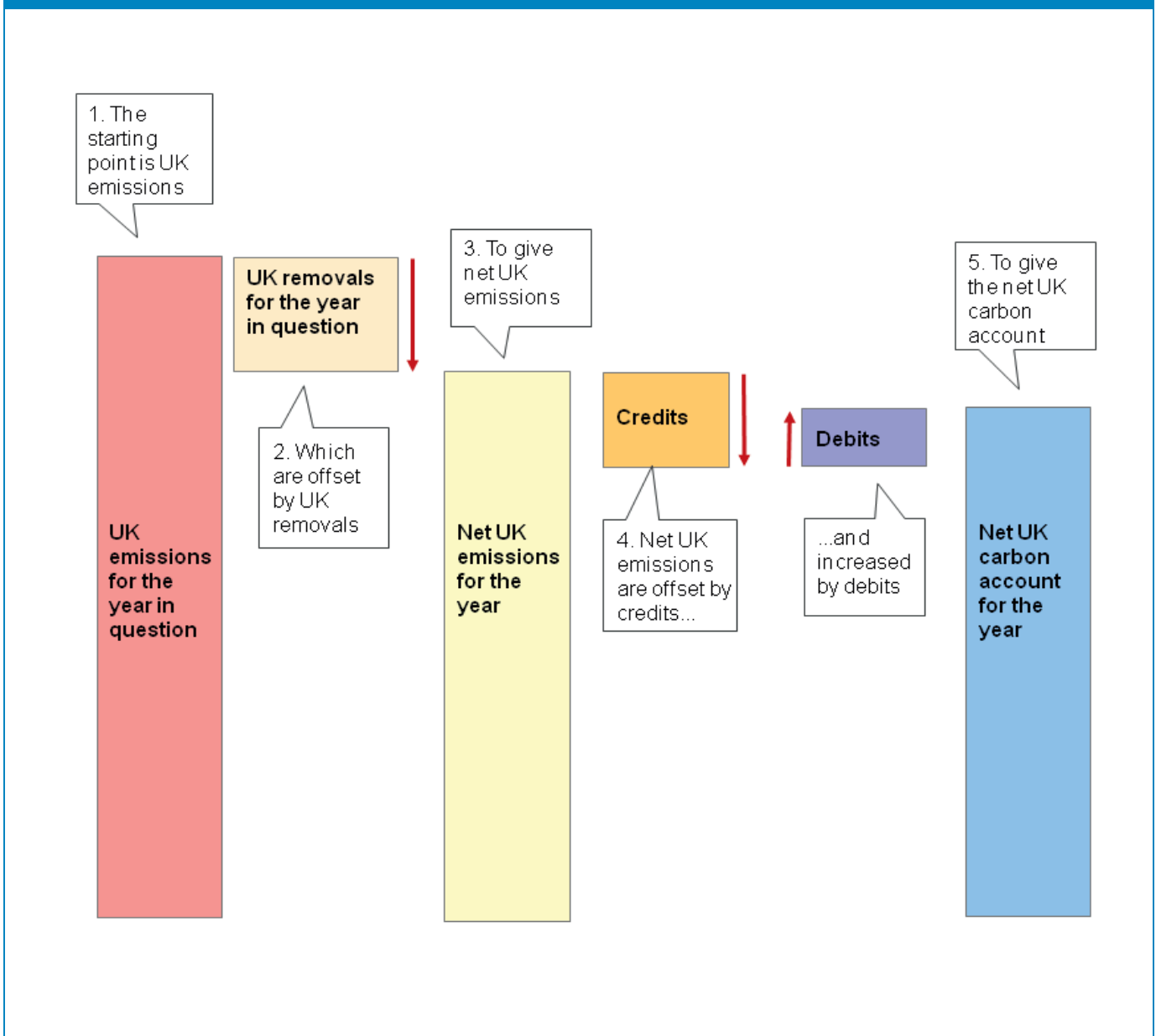
5. Section 27 of the Climate Change Act defines the “net UK carbon account”. This is what we compare against carbon budgets to determine whether we are meeting them. The net UK carbon account must not exceed the level of the carbon budget at the end of each budgetary period. The process for determining the net UK carbon account in each year is summarised in Figure 1.
6. The starting point is UK emissions for the year, using data from the annual statistical release of UK greenhouse gas emissions published as National Statistics in February annually.<sup>1</sup> These emissions comprise aggregate gross emissions from sources in the UK, including emissions from land use, land use change and forestry (LULUCF), which are then adjusted to take into account removals of emissions from the atmosphere by carbon sinks associated with LULUCF activity.<sup>2</sup>

<sup>1</sup> The final 2008 estimates of UK greenhouse gas emissions were published on 2 February 2010. See: [www.decc.gov.uk/en/content/cms/statistics/climate\\_change/gg\\_emissions/uk\\_emissions/2008\\_final/208\\_final.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2008_final/208_final.aspx)

<sup>2</sup> The UNFCCC defines a carbon sink as “any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.”

7. This gives net UK emissions, which are adjusted to account for:
  - a. carbon units which have been brought in from overseas by Government and others to offset UK emissions (“credits”), thereby reducing the net UK carbon account, and
  - b. UK carbon units which have been sold to a third party outside the UK or otherwise disposed of (“debits”), which increase the net UK carbon account as the recipient can use these units to offset their own emissions and it would lead to double counting if they were also used to offset UK emissions.

**Figure 1: Calculating the net UK carbon account**



## Structure of the report

8. This report contains two sections:

- **Part 1** provides UK greenhouse gas emissions statistics for 2008, covering emissions, removals and net emissions of each of the six greenhouse gases covered by carbon budgets, individually and collectively.
- **Part 2** sets out the amount of units which have been credited to and debited from the net UK carbon account in 2008. The calculations in this part of the report are based on the methodologies established by the Carbon Accounting Regulations 2009 and the Carbon Accounting (Amendment) Regulations 2009.<sup>3</sup>

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<sup>3</sup> SI 2009 No. 1257 and SI 2009 No. 3146, respectively, available from:  
[www.opsi.gov.uk/si/si2009/uksi\\_20091257\\_en\\_1](http://www.opsi.gov.uk/si/si2009/uksi_20091257_en_1) and [www.opsi.gov.uk/si/si2009/uksi\\_20093146\\_en\\_1](http://www.opsi.gov.uk/si/si2009/uksi_20093146_en_1)



# Part 1 – UK greenhouse gas emissions

9. The information contained in this part of the statement is derived from the UK greenhouse gas emissions statistics for 2008, which were published on 2 February 2010.<sup>4</sup> Emissions coverage under the Climate Change Act 2008 comprises UK territory only (i.e. England, Wales, Scotland and Northern Ireland).<sup>5</sup>
10. Unless otherwise stated, all figures in this section are stated in tonnes of carbon dioxide-equivalent (tCO<sub>2</sub>e). This is the usual way of reporting greenhouse gases to account for the different global warming potentials of each gas. The global warming potential (GWP) of a gas is a measure of its impact on global warming relative to carbon dioxide, and is agreed at international level. Carbon dioxide-equivalent figures are therefore produced by multiplying the emissions of a greenhouse gas by its GWP. This means the emissions and removals figures for different greenhouse gases in this part of the report are directly comparable.

## 1.1 Base year emissions by gas

### *Section 16(8) of the Climate Change Act*

11. Table 1 sets out the base year figures – the emissions in the year against which progress is measured – for each greenhouse gas covered by the Act, on the basis of the methodology in the UK's 1990-2008 National Emissions Inventory. Under the Kyoto Protocol, the UK uses 1990 as the base year for carbon dioxide, methane and nitrous oxide emissions, and 1995 as the base year for the F-gases (hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride). To ensure consistency with our international obligations, the same base year for each greenhouse gas is used under the Climate Change Act.

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<sup>4</sup> See:

[www.decc.gov.uk/en/content/cms/statistics/climate\\_change/gg\\_emissions/uk\\_emissions/2008\\_final/2008\\_final.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2008_final/2008_final.aspx)

<sup>5</sup> Section 89 of the Climate Change Act specifies that this includes UK coastal waters and the UK sector of the continental shelf.

**Table 1: Base year emissions for each greenhouse gas, tCO<sub>2</sub>e**

Greenhouse gas	Base year	Net base year emissions
<b>Carbon dioxide</b> CO <sub>2</sub>	1990	591,448,922
<b>Methane</b> CH <sub>4</sub>		104,143,071
<b>Nitrous oxide</b> N <sub>2</sub> O		65,061,157
<b>Hydrofluorocarbons</b> HFCs	1995	15,465,911
<b>Perfluorocarbons</b> PFCs		461,887
<b>Sulphur hexafluoride</b> SF <sub>6</sub>		1,239,300
<b>TOTAL</b> <sup>6</sup>		<b>777,820,247</b>

## 1.2 2008 emissions by gas

### *Section 16(2) of the Climate Change Act*

12. Tables 2 to 7 provide data for each of the six greenhouse gases covered by the Climate Change Act and carbon budgets framework. As required by the Act, this includes details of:

- The amount for 2008 of UK emissions, UK removals and net UK emissions of each gas; and
- Whether any of those amounts represent an increase or decrease compared to the equivalent amount for the previous year.

13. Section 16 also requires that the annual statement of emissions must include details of the methods used to measure or calculate those amounts, and this is set out in paragraph 14.

<sup>6</sup> Figures may not sum due to rounding.

<b>Table 2: Carbon dioxide (CO<sub>2</sub>) emissions, tCO<sub>2</sub>e</b>	
<b>2008 UK CO<sub>2</sub> emissions (A)</b>	<b>533,477,187</b>
2007 UK CO <sub>2</sub> emissions (B)	544,079,335
Increase or decrease on previous year (A – B)	Decrease of 10,602,148 tCO <sub>2</sub> e on previous year
<b>2008 UK CO<sub>2</sub> removals<sup>7</sup>(C)</b>	<b>1,973,774</b>
2007 UK CO <sub>2</sub> removals <sup>7</sup> (D)	1,886,454
Increase or decrease on previous year (C – D)	Increase of 87,320 tCO <sub>2</sub> e on previous year
<b>2008 net UK CO<sub>2</sub> emissions (E = A – C)</b>	<b>531,503,413</b>
2007 net UK CO <sub>2</sub> emissions (F = B – D)	542,192,881
Increase or decrease on previous year (E – F)	Decrease of 10,689,468 tCO <sub>2</sub> e on previous year

<b>Table 3: Methane (CH<sub>4</sub>) emissions, tCO<sub>2</sub>e</b>	
<b>2008 UK CH<sub>4</sub> emissions (A)</b>	<b>48,542,046</b>
2007 UK CH <sub>4</sub> emissions (B)	49,091,010
Increase or decrease on previous year (A – B)	Decrease of 548,964 tCO <sub>2</sub> e on previous year
<b>2008 UK CH<sub>4</sub> removals<sup>7</sup> (C)</b>	<b>-28,042</b>
2007 UK CH <sub>4</sub> removals <sup>7</sup> (D)	-30,340
Increase or decrease on previous year (C – D)	Increase of 2,298 tCO <sub>2</sub> e on previous year
<b>2008 net UK CH<sub>4</sub> emissions (E = A – C)</b>	<b>48,570,088</b>
2007 net UK CH <sub>4</sub> emissions (F = B – D)	49,121,350
Increase or decrease on previous year (E – F)	Decrease of 551,262 tCO <sub>2</sub> e on previous year

<sup>7</sup> A positive amount means the net effect is the removal of emissions from the atmosphere from these carbon sinks, while a negative figure means the net effect is emissions to the atmosphere from the carbon sink.



<b>Table 4: Nitrous oxide (N<sub>2</sub>O) emissions, tCO<sub>2</sub>e</b>	
<b>2008 UK N<sub>2</sub>O emissions (A)</b>	<b>33,881,250</b>
2007 UK N <sub>2</sub> O emissions (B)	34,687,545
Increase or decrease on previous year (A – B)	Decrease of 806,295 tCO <sub>2</sub> e on previous year
<b>2008 UK N<sub>2</sub>O removals<sup>7</sup> (C)</b>	<b>-3,814</b>
2007 UK N <sub>2</sub> O removals <sup>7</sup> (D)	-4,310
Increase or decrease on previous year (C – D)	Increase of 496 tCO <sub>2</sub> e on previous year
<b>2008 net UK N<sub>2</sub>O emissions (E = A – C)</b>	<b>33,885,065</b>
2007 net UK N <sub>2</sub> O emissions (F = B – D)	34,691,854
Increase or decrease on previous year (E – F)	Decrease of 806,790 tCO <sub>2</sub> e on previous year

<b>Table 5: Hydrofluorocarbon (HFC) emissions, tCO<sub>2</sub>e</b>	
<b>2008 UK HFC emissions (A)</b>	<b>11,162,663</b>
2007 UK HFC emissions (B)	10,925,112
Increase or decrease on previous year (A – B)	Increase of 237,552 tCO <sub>2</sub> e on previous year
<b>2008 UK HFC removals<sup>8</sup> (C)</b>	<b>0</b>
2008 UK HFC removals <sup>8</sup> (D)	0
Increase or decrease on previous year (C – D)	n/a
<b>2008 net UK HFC emissions (E = A – C)</b>	<b>11,162,663</b>
2007 net UK HFC emissions (F = B – D)	10,925,112
Increase or decrease on previous year (E – F)	Increase of 237,552 tCO <sub>2</sub> e on previous year

<sup>8</sup> Removals of greenhouse gas from the atmosphere do not apply to HFCs, PFCs or SF<sub>6</sub>.

**Table 6: Perfluorocarbon (PFC) emissions, tCO<sub>2</sub>e**

<b>2008 UK PFC emissions (A)</b>	<b>208,946</b>
2007 UK PFC emissions (B)	221,020
Increase or decrease on previous year (A – B)	Decrease of 12,074 tCO <sub>2</sub> e on previous year
<b>2008 UK PFC removals<sup>8</sup> (C)</b>	<b>0</b>
2007 UK PFC removals <sup>8</sup> (D)	0
Increase or decrease on previous year (C – D)	n/a
<b>2008 net UK PFC emissions (E = A – C)</b>	<b>208,946</b>
2007 net UK PFC emissions (F = B – D)	221,020
Increase or decrease on previous year (E – F)	Decrease of 12,074 tCO <sub>2</sub> e on previous year

**Table 7: Sulphur hexafluoride (SF<sub>6</sub>) emissions, tCO<sub>2</sub>e**

<b>2008 UK SF<sub>6</sub> emissions (A)</b>	<b>711,122</b>
2007 UK SF <sub>6</sub> emissions (B)	792,432
Increase or decrease on previous year (A – B)	Decrease of 81,309 tCO <sub>2</sub> e on previous year
<b>2008 UK SF<sub>6</sub> removals<sup>8</sup> (C)</b>	<b>0</b>
2007 UK SF <sub>6</sub> removals <sup>8</sup> (D)	0
Increase or decrease on previous year (C – D)	n/a
<b>2008 net UK SF<sub>6</sub> emissions (E = A – C)</b>	<b>711,122</b>
2007 net UK SF <sub>6</sub> emissions (F = B – D)	792,432
Increase or decrease on previous year (E – F)	Decrease of 81,309 tCO <sub>2</sub> e on previous year

14. The emissions and removals data included in tables 2 to 7 are taken from the greenhouse gas emissions data published on 2 February 2010, derived from the UK's 1990-2008 national emissions inventory. The methodologies used to calculate and compile these data is in line with UNFCCC reporting guidelines on annual inventories. These methods include emissions factors (country specific, plant specific and the default emissions factors used under the

international framework), as well as emissions and production data reported by operators and regulators, and modelling.<sup>9</sup>

### 1.3 UK emissions totals

*Section 16(3) of the Climate Change Act*

15. Table 8 sets out the aggregate amount of UK emissions, UK removals and net UK emissions for each gas in 2008, taken from the tables above.

<b>Table 8: Aggregate 2008 UK greenhouse gas emissions, removals and net UK emissions, tCO<sub>2</sub>e</b>			
	<b>UK emissions (A)</b>	<b>UK removals (B)<sup>10</sup></b>	<b>Net UK emissions (A – B)</b>
<b>Carbon dioxide</b>	533,477,187	1,973,774	531,503,413
<b>Methane</b>	48,542,046	-28,042	48,570,088
<b>Nitrous oxide</b>	33,881,250	-3,814	33,885,065
<b>Hydrofluorocarbons</b>	11,162,663	0	11,162,663
<b>Perfluorocarbons</b>	208,946	0	208,946
<b>Sulphur hexafluoride</b>	711,122	0	711,122
<b>TOTAL<sup>11</sup></b>	<b>627,983,216</b>	<b>1,941,918</b>	<b>626,041,299</b>

### 1.4 Change of method

*Section 16(4) of the Climate Change Act*

16. Section 16(4) of the Climate Change Act requires that, where a change in methodology at the international level requires an adjustment in the emissions figures for an earlier year in the same budgetary period, the annual statement of emissions must specify the adjustment required and state the adjusted amount.

<sup>9</sup> Further details on the methods used in specific sectors are set out in table 12 of the data tables published alongside the final 2008 emissions data, available from:

[www.decc.gov.uk/en/content/cms/statistics/climate\\_change/gg\\_emissions/uk\\_emissions/2008\\_final/2008\\_final.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2008_final/2008_final.aspx)

<sup>10</sup> A positive amount means the net effect is the removal of emissions from the atmosphere from these carbon sinks, while a negative figure means the net effect is emissions to the atmosphere from the carbon sink.

<sup>11</sup> Figures may not sum due to rounding.

17. In the Government's response to the consultation on carbon units, the net UK carbon account and carbon accounting, which ran from October 2008 to January 2009,<sup>12</sup> we stated that any adjustment required would be made at the end of the budgetary period. The rationale here is that making adjustments to the net UK carbon account at the end of the period rather than on an ongoing basis would minimise any confusion caused by making retrospective adjustments to figures which had already been published in respect of the net UK carbon account for an individual year. We therefore propose that any adjustment will be explained in full in the final statement for the budgetary period, under section 18 of the Act.<sup>13</sup>
18. To ensure transparency and credibility in the Government's reporting, it is important that any methodological changes which occur that do affect previously reported figures are clearly stated. In future statements we therefore propose to report where such changes have occurred, and state what amounts are involved, but the adjustment required will not be made until the end of the budgetary period.

## 1.5 International aviation and shipping

### *Section 16(5) of the Climate Change Act*

19. Emissions from international aviation and international shipping are not currently included in the carbon budgets framework. Section 16(5) of the Act requires that where this is the case, the annual statement must state any amount relating to these emissions that the UK is required to report in accordance with international methodologies.
20. Emissions from international aviation and international shipping can be estimated from refuelling from bunkers at UK airports and ports, whether by UK or non-UK operators. Under the reporting guidelines agreed by the UNFCCC, these emissions are not included in the UK's emissions total, but are reported as memo items in the national greenhouse gas inventory. Table 9 below shows greenhouse gas emissions from these sources in 2008.

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<sup>12</sup> See: [www.decc.gov.uk/en/content/cms/consultations/carbon\\_account/carbon\\_account.aspx](http://www.decc.gov.uk/en/content/cms/consultations/carbon_account/carbon_account.aspx)

<sup>13</sup> In respect of the first budgetary period, this must be published not later than 31 May 2014.

**Table 9: Greenhouse gas emissions from UK-based<sup>14</sup> international aviation and shipping bunkers in 2008, tCO<sub>2</sub>e**

<b>International aviation total</b>	<b>34,440,800</b>
Carbon dioxide	34,103,204
Methane	1,952
Nitrous oxide	335,643
<b>International shipping total</b>	<b>7,517,020</b>
Carbon dioxide	7,457,104
Methane	2,434
Nitrous oxide	57,482
<b>TOTAL</b>	<b>41,957,820</b>

<sup>14</sup> This differs slightly from the carbon budgets coverage as under the UNFCCC we report emissions from UK-based aviation and shipping bunkers in the UK, Jersey, Guernsey and the Isle of Man.

## Part 2 – the net UK carbon account

21. This part sets out the amount of units which are to be credited to and debited from the net UK carbon account in 2008. The calculations in this part of the statement are based on the methodologies established by the Carbon Accounting Regulations 2009 and the Carbon Accounting (Amendment) Regulations 2009.<sup>15</sup>

### 2.1 Total amount of units credited to and debited from the net UK carbon account

*Section 16(6) of the Climate Change Act*

22. As described above, the net UK carbon account for a given year is calculated by taking net UK emissions for that year, with an adjustment made to reflect the amount of units to be credited to, and debited from, the net UK account for that year. Carbon units which are counted as credits reduce the level of the net UK carbon account, while carbon units which are counted as debits increase the level of the net UK carbon account.

23. The amount of units which are to be counted as credits and debits in respect of 2008 are calculated based on the methodology set out in the Carbon Accounting Regulations 2009 and Carbon Accounting (Amendment) Regulations 2009. There are three elements to consider:

- The amount of units in the credit account which have been declared as credits to the net UK carbon account in respect of 2008 (*regulations 4 and 5*);
- The effect of the EU Emissions Trading System (EU ETS) (*regulation 6, as amended*); and
- Determining whether the Government disposed of any carbon units during the course of 2008 (*regulation 7*).

24. The types of units which may be counted as credits or debits are listed in regulation 3 of the Carbon Accounting Regulations 2009.

#### 2.1.1 Units in the credit account

25. Regulations 4 and 5 of the Carbon Accounting Regulations 2009 establish the mechanism by which units may be counted as credits towards carbon budgets.

26. Regulation 4 requires the Government to open a “credit account” in the UK Registry. The Registry is the system set up in the UK to administer the carbon accounting system under the existing EU and UN frameworks, recording the issuance, transfer, cancellation, retirement and banking of carbon units.

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<sup>15</sup> The Carbon Accounting Regulations 2009 (SI 2009 No. 1257) were amended in December 2009 by the Carbon Accounting (Amendment) Regulations 2009 (SI 2009 No. 3146) to correct a minor error regarding the total amount of allowances allocated to UK installations under the EU Emissions Trading System. The original and amended regulations are available from [www.opsi.gov.uk/si/si2009/uksi\\_20091257\\_en\\_1](http://www.opsi.gov.uk/si/si2009/uksi_20091257_en_1) and [www.opsi.gov.uk/si/si2009/uksi\\_20093146\\_en\\_1](http://www.opsi.gov.uk/si/si2009/uksi_20093146_en_1) respectively. Guidance for stakeholders on the carbon accounting rules is available on the DECC website: [www.decc.gov.uk/en/content/cms/what\\_we\\_do/lc\\_uk/carbon\\_budgets/carbon\\_budgets.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_budgets/carbon_budgets.aspx).

27. The credit account, which was created in the UK Registry in October 2009, is the dedicated route through which carbon units can be credited voluntarily to the net UK carbon account. Regulation 4 establishes a mechanism for returning carbon units which have been transferred into the credit account in error to the account from which they were originally transferred. Any other carbon units can only be removed from the credit account in order to be cancelled – this fulfils the requirement in Section 27(4) of the Act that units counted as credits cannot be used to offset any other emissions.
28. Regulation 5 sets out the process by which carbon units may be counted as credits. In short, any person may transfer carbon units to the credit account but they will only be counted as credits towards the net UK carbon account if a UK Minister makes a declaration to that effect. Where a declaration is not made in respect of a unit in the credit account, the unit may not be counted as a credit.
29. To date no units have been transferred into the credit account, which means that, in respect of 2008, **0 units are to be credited to the net UK carbon account under this mechanism.**

### 2.1.2 Accounting for the EU Emissions Trading System (EU ETS)

30. The EU ETS operates as a cap and trade system, which means that participants are given an allocation of emissions allowances each year. The total amount of allowances issued caps the level of emissions allowed by participants across the EU. Each year, participants must surrender (i.e. give back) allowances equal to their emissions for that year. If their emissions are higher than their allocation for that year then they need to procure additional allowances to cover the higher emissions, either from other participants in the UK or EU which have a surplus of allowances, or by investing in projects which reduce emissions outside the EU under the Kyoto Protocol's Clean Development Mechanism (CDM) or Joint Implementation (JI).<sup>16</sup> If a participant's emissions are lower than their allocation for that year then they will be left with surplus allowances which they may sell to other installations or keep for use in future years.
31. Regulation 6, as amended by the Carbon Accounting (Amendment) Regulations 2009, establishes the mechanism to account for credits and debits as a result of the operation of the EU ETS during the first budgetary period (which coincides with the second phase of the EU ETS). Under this mechanism, at the end of the first budget, the contribution of the EU ETS towards the net UK carbon account will correspond to the level of the UK's cap under the system.
32. During the budgetary period, if EU ETS participants in the UK collectively exceed the UK cap, the amount of emissions in excess of the cap must be considered as a credit, as operators must have bought units from overseas to cover these emissions. If on the other hand EU ETS participants in the UK collectively reduce their emissions below the UK cap, then the difference between reported emissions from the EU ETS sector and the cap must be considered a debit, as operators must have either sold excess units or retained them for use in future periods.

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<sup>16</sup> Credits generated by CDM projects are known as Certified Emission Reductions (CERs), while those generated by JI projects are known as Emission Reduction Units (ERUs).

33. In order to determine whether units should be credited to or debited from the net UK carbon account in each year, the number of allowances surrendered is compared with “the annual allocation”.
34. The starting point for calculating the annual allocation is the total amount of allowances to be allocated by the UK in the period 2008-2012, whether for free, by auction/sale or via the new entrant reserve (1,228,109,497 allowances), less those allowances relating to participants in Gibraltar which are not covered by the Act (941,956 allowances). This gives 1,227,167,541 allowances as the total UK allocation for the first budgetary period, which is then divided between the years of the period as set out in Table 10.

**Table 10: Annual allocation of EU ETS allowances, under section 6 of the Carbon Accounting (Amendment) Regulations 2009**

Year	Annual allocation <sup>17</sup>
2008	245,991,207
2009	245,294,083
2010	245,294,083
2011	245,294,084
2012	245,294,084
<b>TOTAL</b>	<b>1,227,167,541</b>

35. Table 11 sets out the effect of the EU ETS on the net UK carbon account in 2008.

**Table 11: The effect of the EU ETS on the net UK carbon account in 2008**

<b>Total amount of units surrendered by UK operators</b> (A)	<b>265,301,932</b>
Comprised of:	
EU allowances (EUAs)	260,656,175
Certified Emission Reductions (CERs)	4,597,419
Emission Reduction Units (ERUs)	48,338
<b>UK's EU ETS annual allocation for 2008</b> (B)	<b>245,991,207</b>
<b>Difference between 2008 annual allocation and amount of units surrendered</b> (A – B)	<b>19,310,725</b>

<sup>17</sup> The annual allocation for 2008 is the same as the incorrect number contained in the original regulations, and higher than in subsequent years, because the regulations cannot be amended with retrospective effect. The allocations for 2009 and 2010, and 2011 and 2012, are different (by one unit) because allocations must be a whole number and the total allocation for 2009 to 2012 is not divisible by four.



36. As the amount of units surrendered by UK operators exceeded the annual allocation for 2008, a corresponding amount of units must be counted as credits. This means **19,310,725 units are to be credited to the net UK carbon account in 2008 as a result of the EU ETS**. This is made up of the following types of carbon units:
- 4,597,419 CERs;
  - 48,338 ERUs; and
  - 14,664,968 EUAs.

### 2.1.3 Disposal of units

37. Regulation 7 of the Carbon Accounting Regulations 2009 establishes the mechanism for calculating whether an amount of units is to be debited in each year. Debits arise where Government disposes of carbon units, for example by selling them to another country or other third party. These units must be debited, and the net UK carbon account increased accordingly, as the recipient can use the units to offset their own emissions and it would lead to double counting if they were also available to offset UK emissions.
38. To ensure we are able to calculate in each year the amount of units which must be debited, regulation 7 requires that at the end of each year we compare “the UK holding of carbon units” in that year with what “the UK holding of carbon units” was in the previous year.
39. “The UK holding of carbon units” is defined as the amount of units held in the following UK Registry accounts:
- the Party Holding Account in the UK Registry where the UK’s Assigned Amount Units (AAUs) issued under the Kyoto Protocol were initially issued; and
  - the UK’s national retirement account, where the UK retires AAUs annually in accordance with Kyoto Protocol obligations.
40. The holding is also deemed to include the total UK allocation under the EU ETS, regardless of where these are held at the time, as these units are simply UK AAUs which have been converted into EU allowances (EUAs), the EU ETS “currency”.
41. If the UK holding of carbon units is less than it was at the end of the previous year, and if it is also below the original allocation of units given to the UK under the Kyoto Protocol (less an amount representing the allocation to the UK’s Crown Dependencies and Overseas Territories, which are not covered by the Act),<sup>18</sup> this means we must have disposed of units in the meantime. The units will be debited from the net UK carbon account to reflect this.
42. In 2008, the UK’s holding of carbon units was greater than the relevant share of the UK assigned amount, which means there is no requirement to debit an amount of carbon units from the net UK carbon account. This calculation is set out in table 12.

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<sup>18</sup> The original allocation of units given to the UK under the Kyoto Protocol, less an amount representing the allocation to the UK’s Crown Dependencies and Overseas Territories, is defined as “the relevant share of the UK assigned amount”.

**Table 12: Calculation for determining whether an amount of units must be debited in respect of 2008**

<b>UK holding of carbon units on 31 December 2008</b>	<b>3,411,138,674</b>
Comprised of:	
Units in issuance account	2,183,971,133
Units in surrender account	0
Total UK EU ETS allocation	1,227,167,541
<b>Relevant share of the UK assigned amount</b>	<b>3,395,954,499</b>

43. As the UK holding of carbon units in 2008 is greater than the relevant share of the UK assigned amount, **0 units are to be debited from the net UK carbon account as a result of the disposal of carbon units.**

## 2.2 Net UK carbon account for the year

*Section 16(7) of the Climate Change Act*

44. As described above, the net UK carbon account is calculated by taking net UK emissions, which are then adjusted to account for the amount of units to be debited from and credited to the net UK carbon account.

45. The information in table 13 is taken from preceding tables in this report and provides an amount for the net UK carbon account in 2008.

**Table 13: Summary of how the net UK carbon account for 2008 is calculated**

2008 net UK emissions – see table 8 (A)	626,041,299
Amount of units to be credited – see paragraphs 29 and 36 (B)	19,310,725
Amount of units to be debited – see paragraph 43 (C)	0
<b>2008 Net UK carbon account, tCO<sub>2</sub>e</b> (A – B + C)	<b>606,730,574</b>

46. Under the Climate Change Act, the Government is required to meet the carbon budget over the five year period, and there is no requirement to meet specific emissions levels in a given year.<sup>19</sup> This is to allow for unexpected changes in emissions due to reasons outside of Government control. However the Government is required, under section 12 of the Act, to publish indicative annual ranges showing where it expects the net UK carbon account to fall in each year of the budgetary period.

<sup>19</sup> With the exception of 2020 and 2050.

47. Indicative annual ranges for the first three carbon budgets were published in Annex A to the UK Low Carbon Transition Plan.<sup>20</sup> This showed the indicative annual range for the net UK carbon account in 2008 is 588 MtCO<sub>2</sub>e to 619 MtCO<sub>2</sub>e. The net UK carbon account for 2008 therefore falls within the indicative annual range for the year.

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<sup>20</sup> Available from: [www.decc.gov.uk/en/content/cms/publications/lc\\_trans\\_plan/lc\\_trans\\_plan.aspx](http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx)



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